Catalogue of American Amphibians and Reptiles.

Henderson, R.W. 1993. *Corallus enydris.*

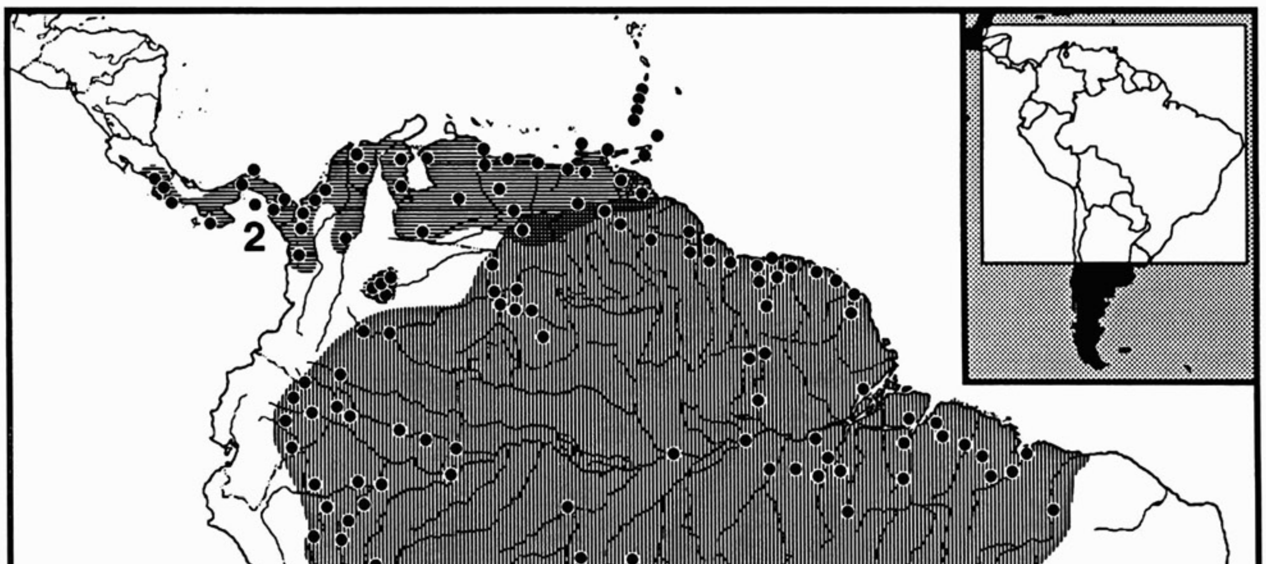
Corallus enydris (Linnaeus)

Boa Enydris Linnaeus, 1758:215. Type-locality, "America." Holotype, Naturhistoriska Riksmuseet, Stockholm (Andersson, 1899), possibly uncatalogued, collector and date of collection unknown, sex unknown, SVL 1020 mm (not examined by author).
Corallus enydris: Forcart, 1951:197.

• **Content.** Two subspecies are recognized, *C. e. enydris* and *C. e. cooki.*

• **Definition.** Maximum SVL is at least 1870 mm (from Trinidad). The general habitus is with a large chunky head, long anterior maxillary teeth, slender neck, strongly laterally compressed body, and prehensile tail. *Corallus enydris* exhibits virtually no sexual dimorphism in pertinent scale characters. Ranges in meristic features are as follows: dorsal scale rows at midbody 37-63; ventrals 250-294; subcaudals 94-133; ventrals + subcaudals 351-436; supralabials (with well-developed labial pits) 8-14; infralabials (with well-developed labial pits) 11-17; scales between supraorbitals 3-14; loreals 1-4; subloreals 0-9; loreals + subloreals 1-11; circumorbital series 9-17; nasals usually in contact with 4-14 scales bordering nasals.

Few snake species show greater color pattern variation than *C. enydris.* Following are color pattern descriptions and notations of size from five geographic areas (some very broad) that describe some of the variability in this species — (1) St. Vincent: Maximum SVL is at least 1374 mm. Dorsal ground color is gray, taupe, or brown; always with a conspicuous dorsal (= lateral because of strong lateral compression) pattern, the main elements of which are gray or brown hourglass shapes or round-cornered rhomboid-like shapes (Henderson, 1991: Fig. 1, pattern 3). The venter is usually heavily patterned with dark brown. (2) Grenada Bank: Maximum SVL is at least 1625 mm. On Grenada the dorsal ground color is extremely variable, including shades of yellow, orange, red, gray, taupe, brown (to nearly black), and olive. For snakes in which the dorsal ground color is yellowish, the dorsum may be completely devoid of pattern, lightly patterned with flecks of brown that occupy less than a single scale, or have a pattern of dark flecks providing the indication of an hourglass shape. Snakes that have a dorsal ground color other than yellow exhibit tremendous variability in pattern shape (anteroposteriorly elongated, dorsoventrally broadened rhomb, hourglass, spade; Henderson, 1991: Fig. 1, patterns 1-6). Dingy yellow is the predominant ventral ground color, but occasionally the venter is cream or white. The ventral pattern may be almost immaculate, marked with flecks and spots, large blotches, or nearly covered with dark brown. The ventral pattern usually becomes denser posteriorly. On the islands of the Grenadines, yellow snakes have been collected on Bequia and Union. Elsewhere dorsal ground color is gray, taupe, some shade of brown, or bright red-orange (Mayreau only). The dorsal pattern is variable, but usually consists of some rhomboid derivative, spade, or hourglass shape (Henderson, 1991: Fig 1). (3) Costa Rica, Panamá (and associated islands), and northern Colombia (north of the Cordillera Oriental): Maximum SVL is at least 1665 mm. Dorsal ground color is yellowish, taupe, gray or some shade of brown (browns predominate). The dorsal pattern is usually a series of large rhombs (Henderson 1991: Fig. 1, pattern 5). Snakes from this geographic area show more consistency than elsewhere in the shape of the main dorsal element. The ventral ground color usually is dingy yellow, and may be nearly immaculate to heavily patterned (if patterned, more so on the posterior portion of the body). (4) Trinidad, Tobago, Isla Margarita, and northern Venezuela: Snakes from this area tend to be very large (especially from Trinidad and the



Map. Distribution of *Corallus enydris.* The type-localities of both subspecies are too imprecise to plot. Solid circles mark known locality records. Subspecies of specimens from areas indicated by cross-hatching are undetermined.

Orinoco Delta) and maximum SVL is at least 1870 mm. The dorsal ground color is yellow, yellow-brown, khaki-brown, or copper brown. A distinct dorsal pattern may be absent, faint or conspicuous rhombs may be present, or the free edges of the dorsal scales may be dark brown. The venter may be whitish, cream, dingy yellow, or bright yellow, and may be immaculate to heavily marked with dark brown to black (becoming more predominant posteriorly). (5) Amazonia (including Atlantic coastal forest) and Guianan South America: Maximum SVL is at least 1640 mm. Dorsal ground color is yellow, some shade of brown or gray, but taupe is the predominant color. A dorsal pattern may be absent (if the dorsal ground color is yellow), but usually consists of a dorsoventrally elongated rhomboidal shape (Henderson, 1991: Fig. 1, pattern 2), distinct or not, gray, taupe, or brown in color. The venter may be white, cream, or (predominantly) dingy yellow; immaculate, with a few flecks, scattered spots and blotches, or nearly completely covered with dark brown. The ventral pattern becomes heavier posteriorly.

The hemipenis in a *C. e. enydris* (from Venezuela south of the Río Orinoco) is 19 mm long and undivided, the arms are reduced to terminal lateral bulges; the sulcus divides 10 mm from the base and the forks run centrifugally to the tips of the lateral bulges; sulcal folds are large, slightly raised and unadorned; ornamentation is flounced; the proximal third of the organ is nude, followed distally by three shallow, transverse flounces that fuse with the sulcal folds and encircle the organ; two rows of coarse papillae (derived from papillate flounces) encircle the organ, and the distal quarter of the organ is covered with scattered, shallow, rounded papillae (Branch, 1981). In comparison (only differences, not similarities, are noted), in *C. e. cooki* (from Panamá), the hemipenis is 34 mm long and shallowly forked (crotch at 32 mm); the sulcus divides 20 mm from the base; the sulcal folds are not raised; the basal quarter of the organ is nude, distally encircled by five well-developed wavy flounces (fused with the sulcal fold and occurring proximad to the sulcal furcation), chevron-shaped with apices directed dorsally on the asulcal surface; the most proximal flounce is extended into a small basal papilla on the asulcal surface; the remainder of organ is covered by many scattered, rounded papillae which are smaller on the arms; small scattered papillae also occur between prominent basal flounces (particularly on the asulcate surface) (Branch, 1981).

• **Diagnosis.** *Corallus enydris* usually has nasals in contact (usually not in contact in *C. annulatus* and *C. caninus*). *Corallus enydris* has 99-133 subcaudals compared to 79-87 in *C. annulatus*, 65-74 in *C. caninus*, and <60 in *C. cropanii*. Juvenile (yellow) *C. caninus* bear a superficial resemblance to yellow phase *C. enydris*, but scale characters easily distinguish the two taxa.

• **Descriptions.** General descriptions are many and vary in usefulness; listed by country or area: Panamá (Cope, 1876; Smith and Grant, 1958), Colombia (Dunn, 1944; Pérez-Santos and Moreno, 1988), Venezuela (Roze, 1964, 1966; Lancini V., 1979), Guyana (Parker, 1935; Beebe, 1946), Suriname (Moonen et al., 1979), French Guiana (Chippaux, 1986), Ecuador (Duellman, 1978; Pérez-Santos and Moreno, 1991), Peru (Carrillo de Espinoza, 1966, 1970; Dixon and Soini, 1976, 1986), Brasil (Wagler, *in* Spix, 1824; Amaral, 1976; Cunha and Nascimento, 1978), Trinidad and Tobago (Mole, 1924; Mole and Urich, 1894; Boos and Quesnel, 1969; Emsley, 1977; Moonen, 1977; Hardy, 1982; Henderson and Boos, in press), West Indies (Henderson, 1988, 1991).

• **Illustrations.** Many photographs of this geographically widespread snake have been published, and it would serve no useful purpose to attempt to list all here. Black and white photographs appear in Ditmars (1942), Beebe (1946), Carrillo de Espinoza (1966), Boos and Quesnel (1969), Foekema (1974), Cunha and Nascimento (1978), Hardy (1982), Stafford (1986c), Bartecki and Heymann (1987), Abuys (1988), Henderson (1988, 1990a, 1990b), Winstel (1988, 1990), Kreutz (1989), Oxtoby (1989), and Henderson and Winstel (1992). Color photographs are in Schmidt and Inger (1957), Roze (1970), Moonen et al. (1979), Lancini V. (1979), Mattison (1986), Stafford (1986), Mehrtens (1987), Henderson (1988), Pérez-Santos and Moreno (1988, 1991), Winstel (1988, 1989, 1992), Campbell and Lamar (1989), and Ross and Marzec (1990). Black and white drawings are found in Wagler, in Spix (1824), Jan and Sordelli (1864), Roze (1966), Barrett (1970), Emsley (1977), Stafford (1986b). Color drawings are in Amaral (1976). Drawings of the hemipenis appear in Branch (1981). Drawings of cranial elements occur in Underwood (1976) and Kluge (1991), drawings of soft tissue in Beddard (1908), and a diagram of the principal nerves innervating the heat sensitive scales in Bullock and Barrett (1968).

• **Distribution.** *Corallus enydris* has an extensive distribution in the Neotropics, occurring from southwestern Costa Rica (south of 10°N) through Panamá (including Isla del Rey, Isla Contadora, Isla de Cébaco, Isla Suscantupu) into South America, where the species may be found in Colombia (east of the Andes, although Pérez-Santos and Moreno [1988] note specimens from west of the Andes), Venezuela (including Isla Margarita) and through Guyana, Suriname, and French Guiana into Amazonian Ecuador, Peru, Bolivia, and Brasil. In Brasil, *C. enydris* is encountered south of the Tropic of Capricorn to 24°43' in the state of São Paulo, and also on Ilha Grande off the southeastern coast. Insular distribution includes Trinidad and Tobago, and in the West Indies the species is known from St. Vincent, many of the Grenadines (Bequia, Ile Quarte, Baliceaux, Mustique, Canouan, Mayreau, Union, Carriacou, Petit Martinique), and Grenada. Altitudinal distribution is from sea level to about 1000 m, although Pérez-Santos and Moreno (1988) note a specimen collected at 1900 m in Colombia.

The distribution of *C. e. enydris* is largely coincident with the distribution of lowland tropical rainforest. These snakes are virtually absent from caatinga in eastern Brasil, and, in general, from areas that receive <1500 mm of precipitation annually. *Corallus e. enydris* does occur in Atlantic coastal forest in southern Brasil. *Corallus e. cooki* occurs in a wider range of habitats (from cactus and thorn scrub to rainforest) and rainfall regimes, including areas that receive <1000 mm of precipitation annually.

• **Fossil Record.** None.

• **Pertinent Literature.** A comprehensive account of the biology of *Corallus enydris* is not available. Many aspects of the biology of *C. enydris* are discussed in a scattered literature, including chromosomes (Beçak, 1965; Gorman and Gress, 1970), bile acids (Haslewood and Wootton, 1951; Haslewood, 1967), scent gland lipids (Tolson, 1987), cranial osteology (Frazzetta, 1959, 1975; McDowell, 1979; Kluge, 1991), internal anatomy (Beddard, 1908; Underwood, 1967), radiant heat reception (Bullock and Barrett, 1968; Barrett, 1970; Maderson, 1970; Meszler, 1970), hemipenis (McDowell, 1979; Branch, 1981), reproduction (Oxtoby, 1989; Winstel, 1989, 1992; Ross and Marzec, 1990), habitat (Sexton and Heatwole, 1965; Roze, 1970; Cunha and Nascimento, 1978; Duellman, 1978, 1989, 1990; Rivero-Blanco and Dixon, 1979; Henderson et al., 1979; Hoogmoed, 1979, Fugler, 1986, Henderson, 1988; Pérez-Santos and Moreno, 1988, 1991; Henderson, 1990b, 1993a; Rodriguez and Cadle, 1990; Zimmerman and Rodrigues, 1990; Schwartz and Henderson, 1991; Henderson and Winstel, 1992; Lillywhite and Henderson, 1993; Henderson and Boos, in press), diel activity (Cunha and Nascimento, 1978; Henderson et al., 1979; Duellman, 1989, 1990; Rodriguez and Cadle, 1990; Zimmerman and Rodrigues, 1990; Henderson and Winstel, 1992), defensive behavior (Bartecki and Heymann, 1987; Greene, 1988; Kreutz, 1989), stereotyped behavior (Carpenter and Ferguson, 1977), diet (Urich, 1933; Wehekind, 1955; Smith and Grant, 1958; Sexton and Heatwole, 1965; Pendlebury, 1974; Cunha and Nascimento, 1978; Greene, 1983; Duellman, 1989, 1990; O'Shea, 1989; Rodriguez and Cadle, 1990; Zimmerman and Rodrigues, 1990; Henderson, 1991, 1993a, 1993b; Schwartz and Henderson, 1991; Lillywhite and Henderson, 1993; Henderson and Boos, in press), relative abundance (Dunn, 1949; Stemmler and Vesely, 1968; Roze, 1970; Fugler, 1986), population density (Grenada) (Henderson and Winstel, 1992), distribution of subspecies (Günther, 1895; Parker, 1935; Lancini V., 1979; Chippaux, 1986), phylogeny (Kluge, 1991), conservation strategy (Henderson, 1988), abuse by humans (Dunn, 1993), captive maintenance (Foekema, 1974; Stafford, 1986a, 1986b, 1986c; Abuys, 1988; Winstel, 1989, 1990, 1992).

• **Etymology.** The specific name *enydris* is from the Greek meaning watersnake. The laterally compressed body may have suggested to Linnaeus that the species was adapted for an aquatic existence. The name *cooki* is a patronym in honor of Edward Cooke, presumably the collector and/or donor of what became the type-specimen.

1. *Corallus enydris enydris* (Linnaeus)

Boa Enydris Linnaeus, 1758:215. See species synonymy.













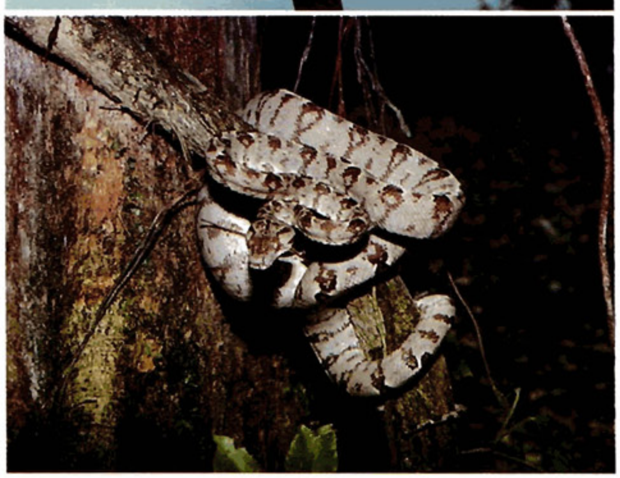


Figure 1. (top row left). *Corallus enydris* from the vicinity of Layou, St. Patrick Parish, St. Vincent.

Figure 2. (top row right). *Corallus enydris* from the vicinity of Westerhall, St. David Parish, Grenada. Photograph by R.A. Winstel.

Figure 3. (second row left). *Corallus enydris* from 1.0 mi NE Grand Etang, St. Andrew Parish, Grenada.

Figure 4. (second row right). *Corallus enydris* from Hollis Reservoir, St. George Co., Trinidad. Photograph by Hans E.A. Boos.

Figure 5. (third row left). *Corallus enydris* from 13 km S, 1 km E Puente Cuyuni, Bolivar, Venezuela. Photograph by W.E. Duellman.

Figure 6. (third row right). *Corallus enydris* from Juréia-Itatins, São Paulo, Brasil. Photograph by I. Sazima.

Figure 7. (fourth row left). *Corallus enydris* from Cuzco Amazonica, Madre de Dios, Peru. Photograph by W.E. Duellman.

Boa Hortulana Linnaeus, 1758:215. Type-locality "America." Holotype, Naturhistoriska Riksmuseet, Stockholm (NRS.) Lin. 7, collector and date of collection unknown, sex and age class unknown (not examined by author).

Vipera bitis Laurenti, 1768:102. Type-locality "Brazil." Holotype, not traced (Seba, 1735).

Vipera madarensis Laurenti, 1768:102. Type-locality, "Isle Madere." Holotype, not traced (Seba, 1734).

Boa Merremii Sentzen, 1796:53. Type-locality, unknown. Holotype, not traced.

Boa Ambleocephala Donndorff, 1798:3. Type-locality, not given. Holotype, not traced.

Boa obtusiceps Bechstein, *in* Lacépède, 1802:46. Type-locality, none given. Holotype, not traced.

Corallus obtusirostris Daudin, 1803:259. Substitute name for *Boa merremii* Sentzen.

Xiphosoma ornatum Wagler, *in* Spix, 1824:40. Type-locality "in aquis flumini Solimoens confinibus." Holotype, Zoologische Staatssammlung, Munich, 2694/0, collector and date of collection unknown, sex unknown, subadult (not examined by author).

Xiphosoma dorsuale Wagler, *in* Spix 1824:43 (pl. XV). Substitute name for *Boa hortulana*.

Boa modesta Reuss, 1834:129. Type-locality, "Brasilien, Provinz Ilheos." Holotype, Natur-Museums und Forschungs-Instituts Senckenberg, Frankfurt a M. (SMF) 16810, collector, date of collection, sex, and age status unknown (not examined by author).

Corallus maculatus Gray, 1842:42. Type-locality, "Berbice." Holotype, British Museum (Natural History) (BMNH) 1946.1.10.43, collector and date of collection unknown, female, 908 mm SVL (examined by author).

Corallus hortulanus: Boulenger, 1893:101.

Corallus enydris enydris: Forcart, 1951:197. First use of trinomial.

• **Diagnosis.** *Corallus e. enydris* is best characterized by 50 or more dorsal scale rows at midbody (rarely a Peruvian or Bolivian specimen will have 47 or 48); *C. e. cooki* invariably has <50. See the Diagnosis for *C. e. cooki* for additional comments.

2. *Corallus enydris cooki* Gray

Corallus Cookii Gray, 1842:42. Type-locality "America" (amended to "West Indies" by Stimson, 1969:11). Holotype, British Museum (Natural History) (BMNH) 1946.1.1.50, collected by Edward Cooke, date of collection unknown, male, 861 mm SVL (examined by author).

Xiphosoma ruschenbergerii Cope, 1876:129. Type-locality, "Panama." Holotype, Academy of Natural Sciences of Philadelphia (ANSP) 10325, collector, date of collection, sex, and age class unknown (not examined by author).

Corallus cooki: Boulenger, 1893:99.

Boa grenadensis Barbour, 1914:327. Type-locality, "St. George's, Grenada." Holotype, Museum of Comparative Zoology, Harvard Univ. (MCZ) 7791, collected 20 August 1910 by G.M. Allen, adult male (examined by author).

Boa salmonidia Briceño, 1934:1141. Type-locality, "Frontera con Colombia en el Río de Oro, y Distrito Colón del Edo Zulia." Holotype, not traced.

Corallus enydris cookii: Forcart, 1951:197. First use of combination.

• **Diagnosis.** *Corallus e. cooki* is best characterized by having <50 dorsal scale rows at midbody (as opposed to 50 or more in *C. e. enydris*). The number of dorsal scale rows changes in a very short distance along the body of *C. enydris*. On the South American mainland, the primary element in the dorsal pattern usually has rounded edges in *C. e. enydris* and a rhombic shape with sharper edges in *C. e. cooki*. Some specimens from the south bank of the Río Orinoco in northeastern Venezuela exhibit a combination of < 50 midbody dorsal scale rows and rounded pattern elements at midbody. Snakes with <50 and >50 midbody dorsal scale rows occur in coastal Guyana and Suriname, and possibly coastal French Guiana (Chippaux, 1986). Although *C. e. enydris* exhibits mean differences in a number of characters (e.g., ventrals, number of scales between supraorbitals, number of loreolabials), these characters overlap considerably, which makes them of limited diagnostic value.

• **Remark.** The distribution of the subspecies of *C. enydris* in Colombia presented by Pérez-Santos and Moreno (1988) is suspect.

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